WHAT IS CLAIMED:

1. A system for drying a tissue or hygiene web, comprising:
a permeable structured fabric carrying the web over a drying apparatus;
a permeable dewatering fabric contacting the web and being guided over the drying apparatus; and
a mechanism for applying pressure to the permeable structured fabric, the web, and the permeable dewatering fabric at th e drying apparatus.

2. The system of claim 1, wherein the permeable structured fabric is a TAD fabric and wherein the drying apparatus comprises a suction roll.

3. The system of claim 1, wherein the drying apparatus comprises a suction roll.

4. The system of claim 1, wherein the drying apparatus comprises a suction box.

5. The system of claim 1, wherein the drying apparatus applies a vacuum or negative pressure to a surface of the permeable dewatering fabric which is opposite to a surface of the permeable dewatering fabric which contacts the web.

6. The system of claim 1, the system is structured and arranged to cause an air flow first through the permeable structured fabric, then through the web, then through the perme able dewatering fabric and into drying apparatus.

7. The system of claim 1, wherein the permeable dewatering fabric comprises at least one smooth surface.

8. The system of claim 7, wherein the permeable dewatering fabric comprises a felt with a batt layer.

9. The system of claim 8, wherein a diameter of batt fibers of the batt layer may one of: equal to or less than 11 dtex; equal to or less than 4.2 dtex; and equal to or less than 3.3 dtex.

10. The system of claim 7, wherein the perm eable dewatering fabric comprises one of: a blend of batt fibers; and a vector layer which contains fibers which are equal to or greater than approximately 67 dtex.

11. The system of claim 7, wherein a specific surface of the permeable dewatering fabric comprises one of: equal to or greater than 35 m^2/m^2 felt area; equal to or greater than 65 m^2/m^2 felt area; and equal to or greater than 100 m^2/m^2 felt area.

12. The system of claim 7, wherein a specific surface of the permeable dewatering fabric comprises one of: equal to or greater than 0.04 m^2/g felt weight; equal to or greater than 0.065 m^2/g felt weight; and equal to or greater than 0.075 m^2/g felt weight.

13. The system of claim 7, wherein a density of the permeable dewatering fabric comprises one of: equal to or higher than 0.4 g/cm^3; equal to or higher than 0.5 g/cm^3; and equal to or higher than 0.53 g/cm^3.

14. The system of claim 1, wherein the permeable dewatering fabric comprises a combination of differen t dtex fibers.

15. The system of claim 1, wherein the permeable dewatering fabric comprises batt fibers and an adhesive to supplement fiber to fiber bonding.

16. The system of claim 1, wherein the permeable dewatering fabric comprises batt fib ers which include at least one of low melt fibers or particles and resin treatments.

17. The system of claim 1, wherein the permeable dewatering fabric comprises a thickness of less than approximately 1.50 mm thick.

18. The system of claim 17, w herein the permeable dewatering fabric comprises a thickness of less than approximately 1.25 mm thick.

19. The system of claim 1, wherein the permeable dewatering fabric comprises a thickness of less than approximately 1.00 mm thick.

20. The system of claim 1, wherein the permeable dewatering fabric comprises weft yarns.

21. The system of claim 20, wherein the weft yarns comprise multifilament yarns which are twisted or plied.

22. The system of claim 20, wherein the weft yarns comprise solid mono strands which are less than approximately 0.30 mm diameter.

23. The system of claim 22, wherein the weft yarns comprise solid mono strands which are less than approximately 0.20 mm diameter.

24. The system of claim 22, wherein the weft yarns comprise solid mono strands which are less than approximately 0.10 mm diameter.

25. The system of claim 20, wherein the weft yarns comprise one of single strand yarns, twisted yarns, cabled yarns, yarns which are joined side by side, and yarns which are generally flat shaped.

26. The system of claim 1, wherein the permeable dewatering fabric comprises warp yarns.

27. The system of claim 26, wherein the warp yarns comprise monofilament yarns having a diameter of betwe en approximately 0.30 mm and approximately 0.10 mm.

28. The system of claim 26, wherein the warp yarns comprise twisted or single filaments which are approximately 0.20 mm in diameter.

29. The system of claim 1, wherein the permeable dewatering fabric is needled punched and includes straight through drainage channels.

30. The system of claim 1, wherein the permeable dewatering fabric is needled punched and utilizes a generally uniform needling.

31. The system of claim 1, wherein the per meable dewatering fabric comprises a base fabric and a thin hydrophobic layer applied to a surface of the base fabric.

32. The system of claim 1, wherein the permeable dewatering fabric comprises an air permeability of between approximately 5 to approximately 100 cfm.

33. The system of claim 32, wherein the permeable dewatering fabric comprises an air permeability which is approximately 19 cfm or higher.

34. The system of claim 33, wherein the permeable dewatering fabric comprises an air permeability which is approximately 35 cfm or higher.

35. The system of claim 1, wherein the permeable dewatering fabric comprises a mean pore diameter in the range of between approximately 5 to approximately 75 microns.

36. The system of claim 35, wherein the permeable dewatering fabric comprises a mean pore diameter which is approximately 25 microns or higher.

37. The system of claim 35, wherein the permeable dewatering fabric comprises a mean pore diameter which is appro ximately 35 microns or higher.

38. The system of claim 1, wherein the permeable dewatering fabric comprises at least one synthetic polymeric material.

39. The system of claim 1, wherein the permeable dewatering fabric comprises wool.

40. The system of claim 1, wherein the permeable dewatering fabric comprises a polyamide material.

41. The system of claim 40, wherein the polyamide material is Nylon 6.

42. The system of claim 1, wherein the permeable dewatering fabric comprises a woven base cloth which is laminated to an anti -rewet layer.

43. The system of claim 42, wherein the woven base cloth comprises a woven endless structure which includes monofilament warp yarns having a diameter of between approximately 0.10 mm and approximately 0.30 mm.

44. The system of claim 43, wherein the diameter is approximately 0.20 mm.

45. The system of claim 42, wherein the woven base cloth comprises a woven endless structure which includes multifilament yarns which are twisted or plied.

46. The system of claim 42, wherein the woven base cloth comprises a woven endless structure which includes multifilament yarns which are solid mono strands of less than approximately 0.30 mm diameter.

47. The system of claim 46, wherein the solid mono strands are approximately 0.20 mm diameter.

48. The system of claim 46, wherein the solid mono strands are approximately 0.10 mm diameter.

49. The system of claim 1, wherein the woven base cloth comprises a woven endless structure which includes weft yarns.

50. The system of claim 1, wherein the weft yarns comprises one of single strand yarns, twisted or cabled yarns, yarns which are joined side by side, and flat shape weft yarns.

51. The system of claim 1, wherein the permeable dewatering fabric comprises a base fabric layer and an anti -rewet layer.

52. The system of claim 51, wherein the anti -rewet layer comprises a thin elastomeric cast permeable membrane.

53. The system of claim 52, wherein the elastomeric cast permeable membrane is equal to or less than approximately 1.05 mm thick.

54. The system of claim 52, wherein the elastomeric cast permeable membrane is adapted to form a buffer layer of air so as to delay water from traveling back into the web.

55. The system of claim 51, wherein the anti -rewet layer and the base fabric layer are connected to each other by lamination.

56. A method of connecting the anti -rewet layer and the base fabric layer of claim 55, the method comprisin g:
melting a thin elastomeric cast permeable membrane into the base fabric layer.

57. A method of connecting the anti -rewet layer and the base fabric layer of claim 55, the method comprising:
needling two or less thin layers of bat fiber on a f ace side of the base fabric layer with two or less thin layers of bat fiber on a back side of the base fabric layer.

58. The method of claim 57, further comprising connecting a thin hydrophobic layer to at least one surface.

59. The system of claim 1, wherein the permeable dewatering fabric comprises an air permeability of approximately 130 cfm or lower.

60. The system of claim 59, wherein the thin hydrophobic layer comprises an air permeability of approximately 100 cfm or lower.

61. The system of claim 60, wherein the thin hydrophobic layer comprises an air permeability of approximately 80 cfm or lower.

62. The system of claim 1, wherein the permeable dewatering fabric comprises a mean pore diameter of approximately 140 micr ons or lower.

63. The system of claim 62, wherein the permeable dewatering fabric comprises a mean pore diameter of approximately 100 microns or lower.

64. The system of claim 62, wherein the permeable dewatering fabric comprises a mean pore diameter of approximately 60 microns or lower.

65. The system of claim 1, wherein the permeable dewatering fabric comprises an anti-rewet membrane which includes a thin woven multifilament textile cloth which is connected to a thin perforated hydrophobic film by lamination.

66. The system of claim 65, wherein the permeable dewatering fabric comprises an air permeability of approximately 35 cfm or less.

67. The system of claim 65, wherein the permeable dewatering fabric comprises an air permeability of approximately 25 cfm or less.

68. The system of claim 65, wherein the permeable dewatering fabric comprises a mean pore size of approximately 15 microns.

69. The system of claim 1, wherein the permeable dewatering fabric comprises vertical flow channels.

70. The system of claim 69, wherein the vertical flow channels are formed printing polymeric materials on to a base fabric.

71. The system of claim 69, wherein the vertical flow channels are formed a weave pattern which uses low melt yarns that are thermoformed to create channels and air blocks.

72. The system of claim 69, wherein the vertical flow channels are formed by needle punching, whereby the needle punching enhances a surface characteristic and im proves wear resistance.

73. A system for drying a web, comprising:
a permeable structured fabric carrying the web over a vacuum roll;
a permeable dewatering fabric contacting the web and being guided over the vacuum roll; and
a mechanism for ap plying pressure to the permeable structured fabric, the web, and the permeable dewatering fabric at the vacuum roll.

74. The system of claim 73, wherein the mechanism comprises a hood which produces an overpressure.

75. The system of claim 73, wherein the mechanism comprises a belt press which is adapted to increase in speed without causing a reduction is web quality.

76. The system of claim 73, wherein the belt press comprises a permeable belt.

77. A method of drying a web using t he system of claim 73, the method comprising:
moving the web on the permeable structured fabric over the vacuum roll;
guiding the permeable dewatering fabric in contact with the web over the vacuum roll; applying mechanical pressure to the permeable structured fabric, the web, and the permeable dewatering fabric at the vacuum roll; and

suctioning during the applying, with the vacuum roll, the permeable structured fabric, the web, and the permeable dewatering fabric.

78. A belt press for a paper machine, the belt press comprising:
a roll comprising an exterior surface;
a permeable belt comprising a first side and being guided over a portion of said exterior surface of said roll;
said permeable belt having a tension of at le ast approximately 30 KN/m;
said first side having an open area of at least approximately 25% and a contact area of at least approximately 10%, preferably of at least approximately 25 %,
wherein a web travels between the permeable belt and the exterior surface of the roll.

79. The belt press of claim 78, wherein said first side faces the exterior surface and wherein said permeable belt exerts a pressing force on said roll.

80. The belt press of claim 78, wherein said permeable belt co mprises through openings.

81. The belt press of claim 78, wherein said permeable belt comprises through openings arranged in a generally regular symmetrical pattern.

82. The belt press of claim 78, wherein said permeable belt comprises generally parallel rows of through openings, whereby the rows are oriented along a machine direction.

83. The belt press of claim 78, wherein said permeable belt exerts a pressing force on said roll in the range of between approximately 30 KPa to approximately 150 KPa.

84. The belt press of claim 78, wherein said permeable belt comprises through openings and a plurality of grooves, each groove intersecting a different set of through openings.

85. The belt press of claim 84, wherein said fi rst side faces the exterior surface and wherein said permeable belt exerts a pressing force on said roll.

86. The belt press of claim 84, wherein said plurality of grooves arranged on said first side.

87. The belt press of claim 84, wherein eac h of said plurality of grooves comprises a width, and wherein each of the through openings comprises a diameter, and wherein said diameter is greater than said width.

88. The belt press of claim 78, wherein said tension of said belt is greater than approximately 50 KN/m.

89. The belt press of claim 88, wherein said tension of said belt is greater than approximately 60 KN/m.

90. The belt press of claim 88, wherein said tension of said belt is greater than approximately 80 KN/m.

91. The belt press of claim 78, wherein said roll comprises a vacuum roll.

92. The belt press of claim 78, wherein said roll comprises a vacuum roll having an interior circumferential portion.

93. The belt press of claim 92, wherein said vacuum roll comprises at least one vacuum zone arranged within said interior circumferential portion.

94. The belt press of claim 78, wherein said roll comprises a vacuum roll having a suction zone.

95. The belt press of claim 94, wherein said suction zon e comprises a circumferential length of between approximately 200 mm and approximately 2,500 mm.

96. The belt press of claim 95, wherein said circumferential length is in the range of between approximately 800 mm and approximately 1,800 mm.

97. The belt press of claim 96, wherein said circumferential length is in the range of between approximately 1,200 mm and approximately 1,600 mm.

98. A fibrous material drying arrangement comprising:
an endlessly circulating permeable extended n ip press (ENP) belt guided over a roll;
said ENP belt being subjected to a tension of at least approximately 30 KN/m; and

said ENP belt comprising a side having an open area of at least approximately 25% and a contact area of at least appro ximately 10%, preferably of at least approximately 25 %,
wherein a web travels between the ENP belt and the roll.

99. A permeable extended nip press (ENP) belt which is capable of being subjected to a tension of at least approximately 30 KN/m, said permeable ENP belt comprising:
at least one side comprising an open area of at least approximately 25% and a contact area of at least approximately 10% , preferably of at least approximately 25 % .

100. The ENP belt of claim 99, wherein the o pen area is defined by through openings and the contact area is defined by a planar surface.

101. The ENP belt of claim 99, wherein the open area is defined by through openings and the contact area is defined by a planar surface without openi ngs, recesses, or grooves.

102. The ENP belt of claim 99, wherein the open area is defined by through openings and grooves, and the contact area is defined by a planar surface without openings, recesses, or grooves.

103. The ENP belt of claim 99, wherein said open area is between approximately 15% and approximately 50%, and said contact area is between approximately 50% and approximately 85%.

104. The ENP belt of claim 99, wherein said permeable ENP belt is a spiral link fabric.

105. The ENP belt of claim 99, wherein said permeable ENP belt comprises at least one spiral link fabric.

106. The ENP belt of claim 105, wherein an open area of the at least one spiral link fabric is between approximately 30% and approximately 85%, and a contact area of the at least one spiral link fabric is between approximately 15% and approximately 70%.

107. The ENP belt of claim 106, wherein said open area is between approximately 45% and approximately 85%, and said contact area is between approximately 15% and approximately 55%.

108. The ENP belt of claim 107, wherein said open area is between approximately 50% and approximately 65%, and said contact area is between approximately 35% and approximately 50%.

109. The ENP belt of claim 99, wherein said permeable ENP belt comprises through openings arranged in a generally symmetrical pattern.

110. The ENP belt of claim 99, wherein said permeable ENP belt comprises through openings arranged in generally parallel row s relative to a machine direction.

111. The ENP belt of claim 99, wherein said permeable ENP belt comprises an endless circulating belt.

112. The ENP belt of claim 99, wherein said permeable ENP belt comprises through openings and wherein sa id at least one side of

said permeable ENP belt comprises a plurality of grooves, each of said plurality of grooves intersecting a different set of through hole.

113. The ENP belt of claim 112, wherein each of said plurality of grooves comprises a width, and wherein each of said through openings comprises a diameter, and wherein said diameter is greater than said width.

114. The ENP belt of claim 113, wherein each of said plurality of grooves extend into the permeable ENP belt by an amount which is less than a thickness of the permeable belt.

115. The ENP belt of claim 99, wherein said tension is greater than approximately 50 KN/m.

116. The ENP belt of claim 99, wherein said permeable ENP belt comprises a flexible spiral link fabric.

117. The ENP belt of claim 99, wherein said permeable ENP belt comprises at least one spiral link fabric.

118. The ENP belt of claim 117, wherein said at least one spiral link fabric comprises a synthetic material.

119. The ENP belt of claim 117, wherein said at least one spiral link fabric comprises stainless steel.

120. The ENP belt of claim 99, wherein said permeable ENP belt comprises a permeable fabric which is reinforced by at least one spiral link belt.

121. A method of drying a paper web in a press arrangement, the method comprising:
moving the paper web, disposed between at least one first fabric and at least one second fabric, between a support surface and a pressure producing element; and
moving a fluid through the paper web, the at least one first and second fabrics, and the support surface.

122. A belt press for a paper machine, the belt press comprising:
a vacuum roll comprising an exterior surface and at least one suction zone;
a permeable belt comprising a first side and being guided over a portion of said exterior surface of said vacuum roll;
said permeable belt having a tension of at least approximately 30 KN/m; and
said first side having an open area of at least app roximately 25% a contact area of at least approximately 10%, preferably of at least approximately 25 %,
wherein a web travels between the permeable belt and the exterior surface of the roll.

123. The belt press of claim 122, wherein said at le ast one suction zone comprises a circumferential length of between approximately 200 mm and approximately 2,500 mm.

124. The belt press of claim 123, wherein said circumferential length defines an arc of between approximately 80 degrees and approximately 180 degrees.

125. The belt press of claim 124, wherein said circumferential length defines an arc of between approximately 80 degrees and approximately 130 degrees.

126. The belt press of claim 125, wherein said at least one suction zone is adapted to apply vacuum for a dwell time which is equal to or greater than approximately 40 ms.

127. The belt press of claim 126, wherein said dwell time is equal to or greater than approximately 50 ms.

128. The belt press of claim 122 , wherein said permeable belt exerts a pressing force on said vacuum roll for a first dwell time which is equal to or greater than approximately 40 ms.

129. The belt press of claim 128, wherein said at least one suction zone is adapted to apply vacuum for a second dwell time which is equal to or greater than approximately 40 ms.

130. The belt press of claim 129, wherein said second dwell time is equal to or greater than approximately 50 ms.

131. The belt press of claim 130, wherein said first dwell time is equal to or greater than approximately 50 ms.

132. The belt press of claim 122, wherein said permeable belt comprises at least one spiral link fabric.

133. The belt press of claim 122, wherein said at least one spiral link fabric comprises a synthetic material.

134. The belt press of claim 122, wherein said at least one spiral link fabric comprises stainless steel.

135. The belt press of claim 132, wherein said at least one spiral link fabric comprises a tension which is between approximately 30 KN/m and approximately 80 KN/m.

136. The belt press of claim 135, wherein said tension is between approximately 35 KN/m and approximately 50 KN/m.

137. A method of pressing and drying a paper web, the method comprising:
pressing, with a pressure producing element, the paper web between at least one first fabric and at least one second fabric; and
simultaneously moving a fluid through the paper web and the at least one first and second fabrics.

138. The method of claim 137, wherein said pressing occurs for a dwell time which is equal to or greater than approximately 40 ms.

139. The method of claim 138, wherein said dwell time is equal to or greater than approximately 50 ms.

140. The method of claim 137, wherein said simultaneously moving occurs for a dwell time which is equal to or greater than approximately 40 ms.

141. The method of claim 140, wherein said dwell time is equal to or greater than approximately 50 ms.

142. The method of claim 137, wherein said pressure producing element comprises a device which applied a vacuum.

143. The method of claim 142, wherein said vacuum is greater than approximately 0.5 bar.

144. The method of claim 143, wherein said vacuum is greater than approximately 1 bar.

145. The method of claim 144, wherein said vacuum is greater than approximately 1.5 bar.